

IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of the claims in the application:

1. (Currently amended) A process for synthesizing photo-curable poly(ethynyl)carbosilane comprising the steps of:

- a. mixing dichlorosilane and trichlorosilane reagents;
- b. adding a sub-stoichiometric ~~amounts~~ amount of alkali metal; and
- c. adding sodium acetylide in excess of said sub-stoichiometric ~~amounts~~ amount of alkali metal.

2-57. (Cancelled)

58. (New) The process of claim 1, wherein the step of mixing dichlorosilane and trichlorosilane reagents is performed in the presence of methylene bromide.

59. (New) The process of claim 1, wherein the alkali metal added in the first adding step comprises sodium.

60. (New) The process of claim 1, further comprising removing sodium chloride after the first adding step.

61. (New) The process of claim 1, further comprising condensing the partially polymerized polyorganochlorosilane.

62. (New) The process of claim 61, further comprising dissolving the partially polymerized polyorganochlorosilane in a solvent prior the second reacting step.

63. (New) The process of claim 58, further comprising retrieving the photo-curable poly(ethynyl)carbosilane by solvent evaporation.

64. (New) The process of claim 58, further comprising retrieving the photo-curable poly(ethynyl)carbosilane by filtration.

65. (New) A process for synthesizing photo-curable poly(ethynyl)carbosilane, comprising the steps of:

reacting a sub-stoichiometric amount of an alkali metal with an organochlorosilane, thereby forming a partially polymerized polyorganochlorosilane; and

reacting the partially polymerized polyorganochlorosilane with sodium acetylide to form photo-curable poly(ethynyl)carbosilane.

66. (New) The process of claim 58, in which the organochlorosilane comprises a mixture of organodichlorosilane and organotrichlorosilane.

67. (New) The process of claim 58, in which the organochlorosilane comprises a mixture selected from dichlorodimethylsilane, trichlorophenylsilane, and methyltrichlorosilane.

68. (New) The process of claim 58, further comprising removing sodium chloride after the first reacting step.

69. (New) The process of claim 58, further comprising condensing the partially polymerized polyorganochlorosilane.

70. (New) The process of claim 61, further comprising dissolving the partially polymerized polyorganochlorosilane in a solvent prior the second reacting step.

71. (New) The process of claim 58, further comprising retrieving the photo-curable poly(ethynyl)carbosilane by solvent evaporation.

72. (New) The process of claim 58, further comprising retrieving the photo-curable poly(ethynyl)carbosilane by filtration.

73. (New) A process of synthesizing photo-curable poly(ethynyl)silazane, comprising the steps of:

reacting sodium acetylide with an organochlorosilane to form an organo(ethynyl)chlorosilane product; and
polymerizing the organo(ethynyl)chlorosilane product by application of ammonia.

74. (New) The process of claim 66, in which the organochlorosilane comprises a mixture of organodichlorosilane and organotrichlorosilane.

75. (New) The process of claim 66, in which the organochlorosilane comprises a mixture selected from dichlorodimethylsilane, trichlorophenylsilane, and methyltrichlorosilane.

76. (New) A process of synthesizing photo-curable poly(ethynyl)silazane, comprising the steps of:

reacting a sub-stoichiometric amount of ammonia with an organochlorosilane to form a partially polymerized polyorganochlorosilazane product; and

reacting the partially polymerized polyorganochlorosilazane with sodium acetylide to form a photo-curable poly(ethynyl)silazane.

77. (New) The process of claim 69, in which the organochlorosilane comprises a mixture of organodichlorosilane and organotrichlorosilane.

78. (New) The process of claim 69, in which the organochlorosilane comprises a mixture selected from dichlorodimethylsilane, trichlorophenylsilane, and methyltrichlorosilane.